

I/WE CLAIM:

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- 1 1. A method for aseptically bottling aseptically sterilized
2 foodstuffs comprising the steps of:
3 providing a plurality of bottles;
4 aseptically disinfecting the plurality of bottles;
5 aseptically filling the aseptically disinfected plurality of
6 bottles with the aseptically sterilized foodstuffs; and
7 filling the aseptically disinfected plurality of bottles at a
8 rate greater than 100 bottles per minute.
- 1 2. The method according to claim 1, wherein the plurality of
2 bottles are made from a glass.
- 1 3. The method according to claim 1, wherein the plurality of
2 bottles are made from a plastic.
- 1 4. The method according to claim 3, wherein the plastic is
2 polyethylene terephthalate.
- 1 5. The method according to claim 3, wherein the plastic is high
2 density polyethylene.
- 1 6. The method according to claim 1, further including capping the
2 bottle with an aseptically disinfected lid.

1 7. The method according to claim 1, wherein the plurality of
2 bottles has an opening size to height ratio of less than one.

1 8. The method according to claim 1, further including
2 disinfecting the interior of the plurality of bottles with a hot
3 hydrogen peroxide spray.

1 9. The method according to claim 8, wherein disinfecting the
2 interior of the plurality of bottles includes the application of
3 the hot hydrogen peroxide spray for about 1 second and the
4 activation and removal of the hot hydrogen peroxide using hot
5 aseptically sterilized air for about 24 seconds.

1 10. The method according to claim 1, further including a feedback
2 control system for maintaining aseptic bottling conditions.

1 11. The method according to claim 1, wherein disinfecting is
2 provided by hydrogen peroxide.

1 12. The method according to claim 1, wherein disinfecting is
2 provided by oxonia.

1 13. The method according to claim 1, wherein disinfecting the
2 outside surfaces of the plurality of bottles is provided by
3 hydrogen peroxide.

1 14. The method according to claim 13, wherein disinfecting the
2 outside surface of the plurality of bottles includes about 1 second
3 for the application of the hot hydrogen peroxide spray and about 24
4 seconds for the activation and removal of the hot hydrogen peroxide
5 using hot aseptically sterilized air.

1 15. The method according to claim 1, wherein disinfecting the
2 outside surfaces of the plurality of bottles is provided by oxonia.

1 16. The method according to claim 1, wherein the step of filling
2 the aseptically disinfected bottling further comprises: filling the
3 aseptically disinfected bottling at a rate greater than 360 bottles
4 per minute.

1 17. The method according to claim 1, wherein the aseptically
2 sterilized foodstuffs are sterilized to a level producing at least
3 a 12 log reduction in *Clostridium botulinum*.

1 18. The method according to claim 1, wherein the aseptically
2 disinfected plurality of bottles are sterilized to a level
3 producing at least a 6 log reduction in spore organisms.

1 19. The method according to claim 8, wherein the residual level of
2 hydrogen peroxide is less than .5ppm.

1 20. A method for automatically aseptically bottling aseptically
2 sterilized foodstuffs comprising the steps of:
3 providing a plurality of bottles;
4 aseptically disinfecting the bottles at a rate greater than
5 100 bottles per minute; and
6 aseptically filling the bottles with aseptically sterilized
7 foodstuffs.

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1 21. A device for aseptically bottling aseptically sterilized
2 foodstuffs comprising:
3 means for providing a plurality of bottles;
4 means for aseptically disinfecting the plurality of bottles;
5 means for aseptically filling the aseptically disinfected
6 plurality of bottles with the aseptically sterilized foodstuffs;
7 and
8 means for filling the aseptically disinfected plurality of
9 bottles at a rate greater than 100 bottles per minute.

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1 22. A device for automatically aseptically bottling aseptically
2 sterilized foodstuffs comprising:
3 means for providing a plurality of bottles;
4 means for aseptically disinfecting the bottles at a rate
5 greater than 100 bottles per minute; and
6 means for aseptically filling the bottles with aseptically
7 sterilized foodstuffs.

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1 23. An aseptic processing apparatus for aseptically bottling
2 aseptically sterilized foodstuffs comprising:
3 a sterile tunnel for surrounding a plurality of bottles with
4 pressurized sterile air;
5 a conveying apparatus for moving the plurality of bottles
6 through the sterile tunnel;
7 a bottle infeed, sterilization and conveying apparatus for
8 sterilizing an exterior surface of each bottle and for feeding the
9 sterilized bottles into the sterile tunnel;
10 an interior bottle sterilization apparatus for applying a
11 sterilant to an interior surface of each bottle;
12 an activation and drying apparatus for activating and removing
13 the sterilant from the interior surface of each bottle;
14 a product filler apparatus for filling the aseptically
15 sterilized plurality of bottles with the aseptically sterilized
16 foodstuffs;
17 a lidding apparatus for applying a sterilized lid to each
18 bottle; and
19 a bottle discharge apparatus for removing the bottles from the
20 sterile tunnel.

1 24. The aseptic processing apparatus according to claim 23,
2 wherein the sterile tunnel further includes a plurality of
3 partitions forming a plurality of sterilant concentration zones.

1 25. The aseptic processing apparatus according to claim 23,
2 wherein each bottle has an opening size to height ratio of less
3 than one.

1 26. The aseptic processing apparatus according to claim 23,
2 wherein the sterilant is hydrogen peroxide.

1 27. The aseptic processing apparatus according to claim 23,
2 wherein the sterilant is oxonia.

1 28. The aseptic processing apparatus according to claim 23,
2 further including a lid sterilization apparatus.

1 29. The aseptic processing apparatus according to claim 23,
2 wherein the plurality of bottles are made from plastic.

1 30. The aseptic processing apparatus according to claim 29,
2 wherein the plastic is polyethylene terephthalate.

1 31. The aseptic processing apparatus according to claim 29,
2 wherein the plastic is high density polyethylene.

1 32. The aseptic processing apparatus according to claim 23,
2 further including a feedback control system for maintaining aseptic
3 bottling conditions.

